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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,090	07/03/2003	Gillian Payne	A-8340	4835

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
TUNGATURTHI, PARITHOSH K	
ART UNIT	**PAPER NUMBER**
1643	

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,090	PAYNE ET AL.	
	Examiner	Art Unit	
	Parithosh K. Tungaturthi	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-38,40-46 and 49-72* is/are pending in the application.

4a) Of the above claim(s) *45,46 and 61-68* is/are withdrawn from consideration.

5)☒ Claim(s) *53, 54, 56-60,71 and 72* is/are allowed.

6)☒ Claim(s) *31-38,69 and 70* is/are rejected.

7)☒ Claim(s) *40-44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/9/06, 3/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The applicant has timely traversed the non-final rejection in the reply filed on 06/20/2006, and a response to the arguments is set forth.

2. Claims 1-30, 39, 47 and 48 have been cancelled

4. Claims 40-42, 44 have been amended.

5. Claims 51-72 have been newly added.

Claims 51-60 and 69-72 are product claims, and claims 61-68 are method claims. Since the product claims were examined in the previous office action, only claims 51-60 and 69-72 are considered for examination in this office action.

Hence, claims 31-38, 40-44, 53-60 and 69-72 are under examination.

6. The text of those sections of Title 35 U.S.C. code not included in this office action can be found in a prior office action.

7. This office action consists of new grounds of rejections.

Rejections withdrawn

8. The rejection of claim 39 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of amendments to the claim, the claim has been cancelled.

9. The rejection of claim 1 under 35 U.S.C. 102(b) as anticipated by Radosevich et al is withdrawn in view of amendments to the claim, the claim has been cancelled.

10. The rejection of claims 1, 2, 3 and 9-11 under 35 U.S.C. 102(b) as anticipated by Hartman et al (Int. J. Cancer 1999; 82:256-267) as evidenced by Zrihan-Licht et al (Eur. J. Biochem. 1994; 224:787-795) and Parry et al (Biochem, Biophys. Res. Comm. 2001; 283:715-720) is withdrawn in view of amendments to the claim, the claim has been cancelled.

11. The rejection of claims 1-6 and 9-11 under 35 U.S.C. 102(e) as anticipated by Kufe et al (U.S. Patent Application Publication 20050053606; Filed 09/11/01) is withdrawn in view of amendments to the claims, the claims have been cancelled.

12. The rejection of claims 1-8 and 15-19 under 35 U.S.C. 103(a) as being unpatentable over Radosevich et al (U.S. Patent 6166176; Issue date December 26th, 2000) in view of Mack et al (U.S. Publication 20040146862; Filed April 9, 2001) in view of Chari et al (a) (U.S. Patent 6333410, Issued December 25th, 2001) in view of Chari et al (b) (U.S. Paten 6340701, Issued January 22nd, 2000) and in view of Chari et al (c) (U.S. Patent 5846545, Issued December 8th, 1998) and further in view of Ni et al teach (U.S. Patent Publication 20030170237, Filed April 30th, 1998) is withdrawn in view of amendments to the claims, the claims have been cancelled.

13. The rejection of claims 1-11 and 15-19 under 35 U.S.C. 103(a) as being unpatentable over Hartman et al (Int. J. Cancer 1999; 82:256-267) as evidenced by Zrihan-Licht et al (Eur. J. Biochem. 1994; 224:787-795) and Parry et al (Biochem, Biophys. Res. Comm. 2001; 283:715-720) and in view of Mack et al (U.S. Publication 20040146862; Filed April 9, 2001) in view of Chari et al (a) (U.S. Patent 6333410, Issued December 25th, 2001) in view of Chari et al (b) (U.S. Paten 6340701, Issued

January 22nd, 2000) and in view of Chari et al (c) (U.S. Patent 5846545, Issued December 8th, 1998) and further in view of Ni et al teach (U.S. Patent Publication 20030170237, Filed April 30th, 1998) is withdrawn in view of amendments to the claims, the claims have been cancelled.

14. The rejection of claims 1-8 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitcham et al (WO 02/06317, International Filing Date July 17th, 2001) as evidenced by the instant specification (page 1, paragraph 3) and as evidenced by Albone et al (U.S. Publication 20050064518, Filed October 16th, 2002) in view of Weiner et al (U.S. Patent 6,512,096 Filed June 25th, 1998) as evidenced by Thorpe et al (U.S. Patent 5,776,427, Issued July 7th, 1998) and in view of Hoogenbooom et al (U.S. Publication 20030235868, Filed April 22nd, 2002) and in view of Mack et al (U.S. Publication 20040146862; Filed April 9, 2001) in view of Chari et al (a) (U.S. Patent 6333410, Issued December 25th, 2001) in view of Chari et al (b) (U.S. Paten 6340701, Issued January 22nd, 2000) and in view of Chari et al (c) (U.S. Patent 5846545, Issued December 8th, 1998) and further in view of Ni et al teach (U.S. Patent Publication 20030170237, Filed April 30th, 1998) is withdrawn in view of amendments to the claims, the claims have been cancelled.

Rejections Maintained + 70

15. Claims 31-37 and 69 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly

connected, to make and/or use the invention is maintained.

It is noted that the applicant submitted the deposit information in the preliminary amendment filed on 10/06/2005. However, the rejection is maintained due to lack of appropriate language in the disclosure to satisfy the deposit requirement as per the rules (please see below, (b) in particular).

(a) during the pendency of this application, access to the deposits will be afforded to the Commissioner upon request:

(b) all restrictions on the availability to the public of the deposited biological material will be irrevocably removed upon the granting of a patent on this application:

(c) the deposits will be maintained in a public depository for a period of at least thirty years from the date of deposit or for the enforceable life of the patent of or for a period of five years after the date of the most recent request for the furnishing of a sample of the deposited biological material, whichever is longest; and

(d) the deposits will be replaced if they should become nonviable or non-replicable.

Applicant's attention is directed to In re Lundak, 773 F.2d. 1216, 227 USPQ 90 (CAFC 1985) and 37 CFR 1.801-1.809 for further information concerning deposit practice.

New Grounds of Rejection

16. Claims 55 and 70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims are unclear for reciting "...a fragment of a recombinant antibody...." because the exact meaning of the phrase is not clear. What fragment is the applicant referring to? Is it any fragment comprising anywhere from one amino acid to the full length of the amino acid? OR Is it an antigen binding fragment of the recombinant antibody? For the purposes of this office action, it is interpreted to be any fragment of the recombinant antibody.

17. Claims 69 and 70 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims are drawn to an antibody that binds the same epitope as an antibody selected from the group consisting of MJ-170, MJ-171, MJ-172 and MJ-173. The specification only teaches MJ-170, MJ-171, MJ-172 and MJ-173 antibodies. There is no other description for any other antibodies, that bind to the same epitope as those bound by MJ-170, MJ-171, MJ-172 and MJ-173 antibodies, as encompassed by the claims.

To provide evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of compete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of

making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a name of a protein domain. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar. 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the ad to recognize that he or she) invented what is claimed." (See Vas-Cath at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See Fiers v. Revel, 25 USPQZd 1601 at 1606 (CAFC 1993) and Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQZd 1016.

One cannot describe what one has not conceived. See Fiddes v. Baird, 30 USPQZd 1481 at 1483. In Fiddes, claims directed to mammalian FGF'S were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, only MJ-170, MJ-171, MJ-172 and MJ-173 antibodies, but not the full breadth of the claim meets the written description provision of 35 U.S.C. § 112, first paragraph. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. § 112 is severable from its enablement provision (see page 1115).

18. Claims 69 and 70 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for antibodies MJ-170, MJ-171, MJ-172 and MJ-173; and antigen binding fragment of a recombinant antibody does not reasonably provide enablement for any antibody that binds the same epitope as the above-mentioned antibodies or any fragment of a recombinant antibody (as claimed in claims 55 and 70). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. Please see below.

Factors to be considered in determining whether undue experimentation is required, are summarized in Ex parte Forman, 230 USPQ 546 (BPAI 1986). They include the nature of the invention, the state of the prior art, the relative skill of those in the art, the amount of direction or guidance disclosed in the specification, the presence or absence of working examples, the predictability or unpredictability of the art, the breadth of the claims, and the quantity of experimentation which would be required in order to practice the invention as claimed.

The claims are broadly drawn to any antibody that binds the same epitope as an antibody selected from the group consisting of MJ-170, MJ-171, MJ-172 and MJ-173, and thus encompass a myriad of antibodies. Hence, the claims are drawn to a variety of antibodies that may not be structurally related and may have different structure and functional properties that. Further, the claims encompass the antibodies that bind to even smaller epitopes within the epitopes bound by MJ-170, MJ-171, MJ-172 and MJ-173 antibodies, so the claims encompass very many antibodies that are not disclosed in the specification. In addition, claim 55 recites an "....a fragment of a recombinant antibody...." which consists anywhere from one amino acid to the full length of the antibody sequence. Thus, the instant claims are only enabled for the antigen-binding fragment of a recombinant antibody but not for any fragment of a recombinant antibody.

The specification teaches antibodies "MJ-170" and "MJ-171, MJ-172, MJ-173" bind to MUC1 and MUC16 respectively (please see the brief description of the figures, in particular). The specification teaches the epitopes that the above-mentioned antibodies bind to (pages 18-21, in particular), which are atleast 20 amino acids in length. The specification fails to teach any other epitope that may possibly be immunogenic to produce an antibody; and thus the antibodies that bind to the disclosed sequences may not be the same as the ones claimed, because the antibodies as claimed consist of antibodies that binds to any epitope which may not consist of all the amino acid sequences as disclosed. Further, the specification fails to teach any fragment of a recombinant antibody that binds to the claimed epitopes.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make all the antibodies that bind to the same epitope as bound by MJ-170, MJ-171, MJ-172 and MJ-173 antibodies, because there is a possibility of the existence of very many antibodies that are not disclosed in the specification that binds to smaller epitopes (amino acid sequence) within the epitopes as bound by MJ-170, MJ-171, MJ-172 and MJ-173 antibodies and also becuase the specification gives insufficient guidance on or exemplification of how to make all of these types of tumor suppressor protein or fragments thereof. Antibodies that bind to a given epitope that is of significant in length (atleast 20 amino acids in length) as broadly drawn, read on any antibody that may bind to any epitope that can vary any where from 5 amino acids to 15 amino acids, for example. However, the specification has not enabled all of these types of antibodies. Further, the antibodies as disclosed in the specification and the ones claimed in the instant claims represent separate and distinct antibody products because they bind to chemically distinct epitopes varying in lengths (because the claims do not specify any particular length of the epitope) and hence represent a variety of distinct polypeptides that differ in the length of the amino acid sequences and that may possess a significant difference in their structure-function as compared to the full length epitope as disclosed in the specification.

Colman et al (Research in Immunology 1994, 145:33-36) teach the specificity of antibody-antigen interaction, wherein in one structural context, a very conservative substitution may abolish binding; in another, a non-conservative substitution may have

very little effect on the binding affinity. Current estimated of the potential number of antibody molecules that can be generated by all the known genetic mechanisms is in excess of 10^{18}. This and similar other estimates assume each of the 20 amino acids is different from every other amino acid, which is appropriate for purpose of enumeration but not for the purpose of estimating how many different antibody specificities can be produced (page 35, in particular). Thus, the length of the amino acid sequence including the properties of the amino acids that constitute the peptide make up the properties of the peptide. Hence the antibody that binds to such peptide can be completely different in structure-function from an antibody that binds to an epitope which may be a few less/more amino acids in length.

In addition, Ibragimova and Eade (Biophysical Journal, Oct 1999, Vol. 77, pp. 2191-2198) teach that factors affecting protein folding and stability are governed by many small and often opposing effects and that even when the "rules" are know for altering the stability of a protein fold by the introduction of a single point mutation the result is not reliable because the balance of forces governing folding differs for different protein sequences, and that the determination of the relative magnitude of the forces governing the folding and stability of a given protein sequence is not straightforward (page 2191, first column, lines 12-17 and second column, lines 3-8).

Rudikoff et al (Proc. Natl. Acad. Sci. USA 1982 Vol 79 page 1979) teach that even minor changes in the amino acid sequences of the heavy and light variable regions, padicularly in the CDRS, may dramatically affect antigen-binding function. Rudikoff et al. also teach that the alteration phosphocholine-binding function. of a single

amino acid in the CDR of a myeloma protein resulted in the loss of antigen-binding (please see the entire document, in particular).

Thus, these above references teach that the claims encompass a variety of antibodies that bind to any length of amino acid sequence within the disclosed epitopes, for which the instant specification is not found enabled.

In view of the lack of guidance, lack of examples, and lack of predictability in the art and using the myriad of derivatives encompassed in the scope of the claims, one skilled in the art would be forced into undue experimentation in order to practice the broadly claimed invention.

Conclusion

19. Claims 53, 54, 56-60, 71 and 72 are found allowable.

20. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parithosh K. Tungaturthi whose telephone number is 571-272-8789. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms, Ph.D. can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully,
Parithosh K. Tungaturthi Ph.D.
(571) 272-8789

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER